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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/618,900	07/14/2003	Akira Shimizu	ASMJP.126AUS	7366

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EXAMINER	
ZERVIGON, RUDY	

ART UNIT	PAPER NUMBER
1792	

NOTIFICATION DATE	DELIVERY MODE
01/03/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/618,900	SHIMIZU ET AL.	
	Examiner	Art Unit	
	Rudy Zervigon	1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 October 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11 and 22-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11 and 22-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 August 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 24, 2007 has been entered.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1, 5-7, 9-11, 22, 24, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horie; Kuniaki et al. (US 5951923 A). Horie teaches a single-wafer-processing type CVD apparatus (Figure 10; column 10; lines 5-38) for forming a thin film on an object ("W"; Figure 10) to be processed, which comprises: a reaction chamber (150; Figure 10; column 10; lines 5-38); a susceptor (154; Figure 10; column 10; lines 5-38) for placing said object ("W"; Figure 10) thereon, which is provided inside said reaction chamber (150; Figure 10; column 10; lines 5-38); a shower plate (144; Figure 10; column 10; lines 15-20) for emitting a jet of reaction gas to said object ("W"; Figure 10), which is disposed parallel and opposing to said susceptor (154; Figure 10; column 10; lines 5-38); an orifice (102; Figure 9,10) for bringing a liquid raw material ("L"; Figure 10) for deposition and a carrier gas (column 11; lines 15-20) into said reaction chamber (150; Figure 10; column 10; lines 5-38), which is formed through a

ceiling (101; Figure 9,10; column 10; lines 5-38) of said reaction chamber (150; Figure 10; column 10; lines 5-38); an evaporation plate (111; Figure 9,10; column 9; lines 44-60; 11; Figure 3A - "inner shell section") for vaporizing said liquid raw material ("L"; Figure 10), which is disposed in a space between said ceiling (101; Figure 9,10; column 10; lines 5-38) of said reaction chamber (150; Figure 10; column 10; lines 5-38) and said shower plate (144; Figure 10; column 10; lines 15-20), said evaporation plate (111; Figure 9,10; column 9; lines 44-60; 11; Figure 3A - "inner shell section") having a vaporization surface (14; Figure 3A) which is a convex surface facing the ceiling (101; Figure 9,10; column 10; lines 5-38) of the reaction chamber (150; Figure 10; column 10; lines 5-38), having a center under the orifice (102; Figure 9,10), and extending outward toward an outer periphery of the shower plate (144; Figure 10; column 10; lines 15-20), said vaporization surface (14; Figure 3A) having pores (17; Figure 3A; column 6, line 61 - column 7, line 5) distributed exclusively at its outer periphery; and a temperature controller (column 10, line 28-39; column 9; lines 45-57) for controlling said shower plate (144; Figure 10; column 10; lines 15-20) and said evaporation plate (111; Figure 9,10; column 9; lines 44-60; 11; Figure 3A - "inner shell section") at respective given temperatures - claim 1.

Horie further teaches:

i. The apparatus (Figure 10; column 10; lines 5-38) as claimed in Claim 1, wherein said temperature controller (column 10, line 28-39; column 9; lines 45-57) comprises at least one heater (115a,b; Figure 9; column 9; line 45-58) which is arranged adjacently to said evaporation plate (111; Figure 9,10; column 9; lines 44-60; 11; Figure 3A - "inner shell section") and to said shower plate (144; Figure 10; column 10; lines 15-20), temperature

detectors (column 10; lines 35-36) which are respectively linked to said evaporation plate (111; Figure 9,10; column 9; lines 44-60; 11; Figure 3A - "inner shell section") and to said shower plate (144; Figure 10; column 10; lines 15-20), and a temperature regulator (column 10, line 28-39; column 9; lines 45-57) which is linked to said heater (115a,b; Figure 9; column 9; line 45-58) and said temperature detectors (column 10; lines 35-36), as claimed by claim 5

ii. The apparatus (Figure 10; column 10; lines 5-38) as claimed in Claim 1, wherein said liquid raw material ("L"; Figure 10) is a solution wherein a metal complex raw material or a solid raw material used for deposition is dissolved in a solvent, as claimed by claim 6. Applicant's claim requirement of raw material gas identity is a claim requirement of intended use in the pending apparatus claims. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter , 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey,152 USPQ 235 (CCPA 1967); In re Otto , 136 USPQ 458, 459 (CCPA 1963); MPEP2111.02).

iii. The apparatus (Figure 10; column 10; lines 5-38) as claimed in Claim 1, wherein said carrier gas (column 11; lines 15-20) is an inert gas, as claimed by claim 7. Applicant's claim requirement of carrier gas identity is a claim requirement of intended use in the pending apparatus claims. Further, it has been held that claim language that simply

specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter , 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey,152 USPQ 235 (CCPA 1967); In re Otto , 136 USPQ 458, 459 (CCPA 1963); MPEP2111.02).

iv. The apparatus (Figure 10; column 10; lines 5-38) as claimed in Claim 1, wherein the evaporation plate (111; Figure 9,10; column 9; lines 44-60; 11; Figure 3A - "inner shell section") is a hollow plate having an upper plate (114; Figure 9), a lower plate (111; Figure 9), and an interior (122; Figure 9) therebetween, said upper plate (114; Figure 9) constituting the upper surface, said lower plate (111; Figure 9) having pores (17; Figure 3A; column 6, line 61 - column 7, line 5), wherein the liquid raw material ("L"; Figure 10) flows through the pores (17; Figure 3A; column 6, line 61 - column 7, line 5) of the upper plate (114; Figure 9), the interior (122; Figure 9), and the pores (17; Figure 3A; column 6, line 61 - column 7, line 5) of the lower plate (111; Figure 9) toward the shower plate (144; Figure 10; column 10; lines 15-20), as claimed by claim 9

v. The apparatus (Figure 10; column 10; lines 5-38) as claimed in Claim 9, wherein the upper plate (114; Figure 9) of the evaporation plate (111; Figure 9,10; column 9; lines 44-60; 11; Figure 3A - "inner shell section") is a conical surface on which the liquid raw material ("L"; Figure 10) flows from the center to the periphery of the upper plate (114; Figure 9), as claimed by claim 10

vi. The apparatus (Figure 10; column 10; lines 5-38) as claimed in Claim 9, wherein the pores (17; Figure 3A; column 6, line 61 - column 7, line 5) of the Upper plate (114; Figure 9) are arranged along the periphery of the upper plate (114; Figure 9) at equal intervals, as claimed by claim 11

vii. The apparatus (Figure 10; column 10; lines 5-38) as claimed in Claim 5, wherein the at least one heater (115a,b; Figure 9; column 9; line 45-58) is arranged exclusively downstream of the orifice (102; Figure 9,10), as claimed by claim 22

viii. The apparatus (Figure 10; column 10; lines 5-38) as claimed in Claim 9, wherein the pores (17; Figure 3A; column 6, line 61 - column 7, line 5) of the upper and lower plates (114+111; Figure 9) are arranged concentrically, as claimed by claim 24

ix. The apparatus as claimed in Claim 1, wherein the pores (17; Figure 3A; column 6, line 61 - column 7, line 5) are through-holes passing through the vaporization surface (14; Figure 3A) in a direction perpendicular to the vaporization surface (14; Figure 3A) of the evaporation plate (111; Figure 9,10; column 9; lines 44-60; 11; Figure 3A - "inner shell section"), as claimed by claim 26

Horie does not teach said pores (17; Figure 3A; column 6, line 61 - column 7, line 5 – compare to Applicant's 32; Figure 3) being through holes penetrating the vaporization surface (14; Figure 3A – compare to Applicant's 30; Figure 3) and the evaporation plate (111; Figure 9,10; column 9; lines 44-60; 11; Figure 3A - "inner shell section") in a thickness direction of the evaporation plate (111; Figure 9,10; column 9; lines 44-60; 11; Figure 3A - "inner shell section" – compare to Applicant's 3; Figure 3) as claimed by amended claim 1.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize Horie's pore (17; Figure 3A; column 6, line 61 - column 7, line 5 – compare to Applicant's 32; Figure 3) depths/dimension.

Motivation to optimize Horie's pore (17; Figure 3A; column 6, line 61 - column 7, line 5 – compare to Applicant's 32; Figure 3) depths/dimension is for increasing evaporation surface area as taught by Horie (column 3; lines 49-55).

4. Claims 2-4, 8, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horie; Kuniaki et al. (US 5951923 A) in view of Strang, Eric J. (US 20040129217 A1). Horie is discussed above. Horie does not teach:

i. The apparatus (Figure 10; column 10; lines 5-38) as claimed in Claim 1, wherein a base area of said evaporation plate (111; Figure 9,10; column 9; lines 44-60; 11; Figure 3A - "inner shell section") is within the range of 80% to 120% of a base area of said space, as claimed by claim 2

ii. The apparatus (Figure 10; column 10; lines 5-38) as claimed in Claim 1, wherein the given temperature of said evaporation plate (111; Figure 9,10; column 9; lines 44-60; 11;

Figure 3A - "inner shell section") is within the range of 40°C to 300°C, as claimed by claim 3

iii. The apparatus (Figure 10; column 10; lines 5-38) as claimed in Claim 3, wherein the given temperature of said shower plate (144; Figure 10; column 10; lines 15-20) is in the range of 0-50°C higher than the temperature of said evaporation plate (111; Figure 9,10; column 9; lines 44-60; 11; Figure 3A - "inner shell section"), as claimed by claim 4

iv. The apparatus (Figure 10; column 10; lines 5-38) as claimed in Claim 1, which further comprises a pressure detector for detecting a pressure in a space between the ceiling (101; Figure 9,10; column 10; lines 5-38) of said reaction chamber (150; Figure 10; column 10; lines 5-38) and said evaporation plate (111; Figure 9,10; column 9; lines 44-60; 11; Figure 3A - "inner shell section"), and a pressure detector for detecting a pressure in a space between said shower plate (144; Figure 10; column 10; lines 15-20) and said susceptor (154; Figure 10; column 10; lines 5-38), as claimed by claim 8

v. The apparatus (Figure 10; column 10; lines 5-38) as claimed in Claim 9, wherein the number of the pores (17; Figure 3A; column 6, line 61 - column 7, line 5) of the lower plate (111; Figure 9) is greater than that of the upper plate (114; Figure 9), as claimed by claim 23

Strang teaches a pressure detector (220; Figure 7A,B) in his process gas delivery assembly (210) for measuring the pressure in process gas plenum 216.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add Strang's pressure detector (220; Figure 7A,B) to Horie's corresponding gas delivery

plenums, further, depending on the physical properties of the raw material source, it would have been obvious to optimize the temperature and pressure operation of Horie's apparatus.

Motivation to add plural of Strang's pressure detector (220; Figure 7A,B) to Horie's corresponding gas delivery plenums is for detecting a pressure change in the process gas delivery and controlling the gas delivery in response thereof as taught by Strang (abstract). Motivation to optimize the temperature and pressure operation of Horie's apparatus is for stable evaporation (Figure 13; column 1; lines 40-55).

Response to Arguments

5. Applicant's arguments with respect to claims 1-11 and 22-24 have been considered but are moot in view of the new grounds of rejection.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Rudy Zervigon whose telephone number is (571) 272-1442. The examiner can normally be reached on a Monday through Thursday schedule from 8am through 7pm. The official fax phone number for the 1763 art unit is (571) 273-8300. Any Inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Chemical and Materials Engineering art unit receptionist at (571) 272-1700. If the examiner can not be reached please contact the examiner's supervisor, Parviz Hassanzadeh, at (571) 272-1435.

12/27/7